

OVERLAY AND CD PROCESS WINDOW STRUCTURE

Abstract

The present invention provides photolithographic device and method for optimizing the photolithography process window. The photolithography device comprises a substrate; and a pattern layer having radiant energy transparent portions and radiant energy blocking portions, where the pattern layer has features with a varying overlay. The overlay tolerance is determined by varying the misalignment the features of the pattern. The photolithography device is a reticle. The method for determining an optimum photolithography process window comprises exposing a portion of a wafer to a pattern produced by a reticle, the pattern having a varying overlay that produces multiple photolithography conditions, wherein each photolithography condition has an overlay tolerance; and stepping the reticle across a remaining portion of the wafer, where each step exposes an other region of the wafer to the pattern producing multiple photolithography conditions. This process enables the user to determine the lithographic process window for critical dimension and overlay on a single chip

using electrical test structures.